

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



In re Application of	:	<u>PATENT</u>
Pat A. Bolen, et al.	:	Confirmation No. 5533
Serial No.: 10/721,168	:	Docket No. 115584-00343
Filed: November 26, 2003	:	Customer No. 27557
For: Flexible Flat Cable Termination Structure For A Clockspring	:	Art Unit: 2833
	:	Examiner: Harvey, James R.

DECLARATION UNDER 35 U.S.C. § 1.132

MAIL STOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Further to the Response filed concurrently herewith, I, Lawrence T. Rupert, being the Intellectual Property Manager of the Assignee, Methode Electronics, Inc., for the above-captioned patent application, hereby declare as follows:

1. This Declaration under 37 C.F.R. § 1.132 is hereby submitted to demonstrate that the present claimed invention would not have been obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 5,230,713 (*Schauer*) in view Applicant's Admitted Prior Art, and further in view of U.S. Patent No. 6,032,359 (*Carroll*).

2. Attached are the following exhibits:

Exhibit A: U.S. Patent No. 5,865,634;

Exhibit B: U.S. Patent No. 6,109,942;

Exhibits C1-C3: photographs of Furukawa Electric Co. clockspring

3. Conventional clocksprings used in motor vehicles typically employ a small number of conductors. For example, two conductors are typically used for the airbag circuits and three conductors are used for other steering wheel functions, e.g. horn and speed control.

More recently, automakers have increased the quantity of steering wheel mounted control devices to include controls for the audio system, transmission shifting, telephone, etc. This trend greatly increased circuit density requirements against a backdrop of continuous price reduction demands. Thus, there has been a long-felt need for a single high circuit density cable for clocksprings to accommodate the increase in required electrical conductors.

4. The flat cables used in commercial clocksprings have traditionally employed flat copper conductors laminated between two sheets of polymer film. However, using those conventional lamination methods, the lower limit of the width of the flat copper was restricted. Because the width of the cable was restricted by the maximum thickness of a clockspring assembly, an upper limit on the quantity of parallel conductors that could be laminated in a conventional flat cable was also restricted.

5. Prominent suppliers of clocksprings have identified and attempted to solve this problem of the need for increased conductor density by use of two or more flat cables, thus allowing two or more times the amount of circuits to be used.

6. U.S. Patent No. 5,865,634 to Best (Exhibit A) describes in the "Background of the Invention" the need for increased conductor density to accommodate the increase in controls mounted on a vehicle steering wheel. See col. 1, line 61- col. 2, line 2. Best attempts to solve the problem by using at least 2 flat cables 41 and 42. See Fig. 1.

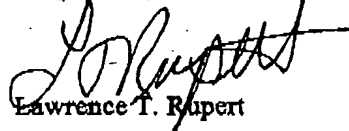
7. U.S. Patent No. 6,109,942 to Bannai (Exhibit B) also identifies the problem of the demand for increased number of electrical circuits to be connected to a clockspring. See col. 1, lines 41-43. Bannai tries to solve the need by using at least two flat cables with the clockspring. See col. 1, lines 62-64

8. Furukawa Electric Company (Exhibits C1-C3) has manufactured and employed two flat cables with its clocksprings to address the increased circuit density need.

9. Use of two flat cables at least doubles the costs of a clockspring, and significant complexity and weight are added to the clockspring. Multiple moving cables also contribute to undesirable sound emanating from the clockspring as the clockspring rotates.

10. The undersigned further declares that all statements herein made on the basis of his actual knowledge are true and that all statements herein made on information and belief are believed to be true, and that all statements herein were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the patent or any certificate of reexamination issued thereon.

Respectfully Submitted,



Lawrence T. Rupert

Dated: May 1, 2007